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EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/936,924

Applicant(s)

ULRICHSEN ET AL.

Examiner

Michael P. Stafira

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment filed 8/12/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 66-124 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 66-102, 110-113 and 117-119 is/are allowed.
- 6) ☒ Claim(s) 103-109, 114-116 and 120-123 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

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reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 103-109, 114, 116, 120, 121, 123 are rejected under 35 U.S.C. 102(e) as being anticipated by Ulrichsen et al. ('677).

#### **Claim 103**

Ulrichsen et al. ('677) discloses emitting means (Fig. 2, Ref. 105) serving to emit a detection medium, which comprises electromagnetic radiation, to be active at said matter, a rotary polygonal mirror (Fig. 2, Ref. 108) arranged to receive from a multiplicity of detection zones (Fig. 2, Ref. 121) at said matter detection medium varied by variations in said matter, at least one folding mirror (Fig. 2, Ref. 107) by way of which said rotary polygonal mirror (Fig. 2, Ref. 108) receives the varied medium, detecting means (Fig. 2, Ref. 120) serving to receive the varied medium by reflection from the rotary polygonal mirror (Fig. 2, Ref. 108), to detect a plurality of wavelengths of said varied medium substantially simultaneously, and to generate detection data in respect of said plurality of wavelengths substantially simultaneously and in dependence upon the variations in said medium (Col. 11-12, lines 55-6), and data-obtaining means connected to said detecting means and serving to obtain said detection data therefrom, the or each folding mirror being arranged to reflect varied medium from at least some of said multiplicity of detection zones (Col. 9-10, lines 37-26).

#### **Claim 104**

Ulrichsen et al. ('677) discloses emitting a beam (Fig. 2, Ref. 105) of detection medium so that said beam scans said matter (Fig. 2, Ref. 121), said medium being varied by variations in the composition of said matter, and one or by passing said medium through said matter and

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through being reflected from said matter, receiving the varied medium at detecting means, generating detection data from said detecting means in dependence upon the variations in said medium, and identifying at least one of said materials from said data (Col. 9-10, lines 37-26)

**Claim 105**

The reference of Ulrichsen et al. ('677) further discloses the medium is varied (See Fig. 2) through being reflected from the matter and detecting means is prevented (Fig. 2, Ref. 107) from receiving direct reflection of the emitted beam.

**Claim 106**

Ulrichsen et al. ('677) further discloses a emitting co-extensively with said beam, a second beam (Fig. 2, Ref. 140) of detection medium so that said second beam also scans said matter (See Fig. 2).

**Claim 107**

Ulrichsen et al. ('677) discloses emitting means (Fig. 2, Ref. 105) serving to emit a scanning beam (Fig. 2, Ref. 121) of detection medium to scan said matter (See Fig. 2), receiving means (Fig. 2, Ref. 120) arranged to receive detection medium varied by variations in the composition of said matter (Col. 9-10, lines 36-26), detecting means serving to generate detection data in dependence upon the variations in said medium, and data-obtaining means connected to said detecting means and serving to obtain said detection data therefrom and to identify at least one of said materials from said data (Col. 11-12, lines 55-56).

**Claim 108**

Ulrichsen et al. ('677) further discloses the emitting means (Fig. 2, Ref. 105) and said receiving means (Fig. 2, Ref. 120) are arranged to be located at a common side of said matter.

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(See Fig. 2), and said receiving means is off-set relative to a direct reflection path of said beam

(See Fig. 2).

**Claim 109**

The reference of Ulrichsen et al. ('677) further discloses said emitting means (Fig. 2, Ref. 105) serves to emit, co-extensively with said beam, a second beam (Fig. 2, Ref. 139) of detection medium to scan said matter (See Fig. 2).

**Claim 114**

Ulrichsen et al. ('677) discloses emitting (Fig. 2, Ref. 105) a detection medium to be active at said matter, said medium being varied by variations in the composition of said matter, receiving the varied medium (See Fig. 2), receiving means (Fig. 2, Ref. 120) from groups of detection spots (Fig. 2, Ref. 121) at a said matter, whereof each group contains a plurality of said detection spots and provides one of said detection zones (See Fig. 2), with the varied medium from all of the detection spots in each group being received substantially simultaneously, generating detection data for each detection zone in dependence upon the variations in said medium at the detection zone, and identifying at least or said materials from said data (Col. 9-10, lines 36-26).

**Claim 116**

Ulrichsen et al. ('677) discloses a emitting means (Fig. 2, Ref. 105) serving to emit a detection medium to be active at said matter (See Fig. 2), receiving means (Fig. 2, Ref. 120) serving to receive detection medium varied by variations in the composition of said matter from, in turn, groups or detection spots at said matter (See Fig. 2), whereof each group contains a plurality of said detection spots (Fig. 2, Ref. 121) and provides one of said detection zones (See

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Fig. 2), with the varied medium from all of the detection spots in each group being received substantially simultaneously, detecting means (Fig. 2, Ref. 120) serving to generate detection data in dependence upon the variations in said medium at each detection zone, and data-obtaining means connected to said detecting means and serving to obtain said detection data therefrom and to identify at least one of said materials from said data (Col. 9-10, lines 36-26).

**Claim 120**

Ulrichsen et al. ('677) discloses an emitting means (Fig. 2, Ref. 105) serving to emit a detection medium (Fig. 2, Ref. 120), which comprises radiation, as a scanning beam (Fig. 2, Ref. 121) to irradiate a path over said matter, inspecting means arranged to inspect the irradiated path at an oblique angle to said matter, and ascertaining means arranged to ascertain from that inspection the general profile of that path (Col. 9-10, lines 36-26).

**Claim 121**

Ulrichsen et al. ('677) discloses an emitting means (Fig. 2, Ref. 105) a detection medium (Fig. 2, Ref. 120), which comprises radiation, to be active at said matter, said medium being varied by variations in said matter (See Fig. 2), at least part of the emitted medium passing through said matter and the varied medium which has passed through said matter being received at detecting means (Fig. 2, Ref. 120), and preventing said detecting means (Fig. 2, Ref. 120) from receiving the medium directly from the emitting means (Fig. 2, Ref. 105).

**Claim 123**

Ulrichsen et al. ('677) discloses an emitting means (Fig. 2, Ref. 105) serving to emit a detection medium (See Fig. 2), which comprises radiation, to be active at said matter, detecting means (Fig. 2, Ref. 120) arranged to receive, by passage of the medium through said matter (See

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Fig. 2), detection medium variations in said matter, and shielding means (Fig. 2, Ref. 107) arranged to prevent the detecting means from receiving the medium directly from the emitting means (See Fig. 2).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 115, 122, 124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ulrichsen et al. ('677).

#### **Claim 115**

Ulrichsen et al. ('677) discloses the claimed invention except for the matter being granulates. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Ulrichsen et al. ('677) with the granulates since it was well known in the art that measuring granulates increases the sorting capability of the apparatus, therefore producing a better product.

#### **Claim 122**

Ulrichsen et al. ('677) discloses the claimed invention except for the use of visible light wavelength as the detection medium. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Ulrichsen et al. ('677) with the visible



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light wavelength since it was well known in the art that using visible wavelengths allows one to inspect different variations of matter, therefore increasing the measurement parameters of the apparatus.

#### **Claim 124**

Ulrichsen et al. ('677) discloses the claimed invention except for a Fresnel lens located between the emitting and the detecting means. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Ulrichsen et al. ('677) with the location of the Fresnel lens since it was well known in the art that the use of a Fresnel lens increases the sensitivity of the light beam therefore making the measurements more accurate.

#### ***Response to Arguments***

7. Applicant's arguments filed May 18, 2004 have been fully considered but they are not persuasive.

With regards to claim 103 on page 21 of applicant's remarks, applicant's position is that the curved mirror (107) of Ulrichsen et al. is not a folding mirror. It is the examiner's position that applicant fails to disclose in the claim limitation the type of structure to produce a folding mirror and therefore the curved mirror of Ulrichsen et al. performs the same function as a folding mirror. Therefore reading on the claimed limitations.

With regards to claim 104 & 107 on page 22, applicant's positions are that the invention beam scans the matter. It is the examiner's position that since applicant fails to disclose how the beam is scanned over the matter, such as a semiconductor laser with a rotating mirror. Therefore

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the bank of light emitting sources (105) of Ulrichsen et al. produces a scan beam across the conveyor, therefore reading on applicant's limitation.

With regards to claim 114 & 116 on pages 22-23, applicant's position is that the reference of Ulrichsen et al. fails to disclose detections spots and detection zones. It is the examiners position that the detection spots are received from each increment of rotation from the polygonal mirror which is detected from the detection means which produces a first detection stream (detection zone) and then produces a second detection stream (another detection zone) and therefore reads on applicant's limitations.

With regards to claim 120 on page 23, applicant's position is that the reference fails to scan a beam of the matter or inspect the matter at an oblique angle etc... The examiner's position as disclosed in the arguments in regards to claim 104 & 107 about scanning a beam across the matter and that in Figure 5 of Ulrichsen et al. it shows light sources (105) at oblique angles to the matter, therefore reading on applicant's limitation. It is further the position of the examiner that the profile of matter is shown on Col. 5, lines 6-23, wherein the profile is the generated detection medium, which is dependent of the variations in the medium and therefore reading on the claimed limitation.

With regards to claim 121 on page 23, applicant's position that the detecting means is at the opposite side of the matter from the emitting means. It is the examiner's position that since applicant fails to disclose structurally how the arrangement is on opposite sides it is the position of the examiner that the light sources 105 and detection means 120 are on opposite side as seen in figure 2 of Ulrichsen et al., therefore reading on applicant's limitations.

With regards to claim 123 on page 23, applicant's position is that mirror 107 is not shielding means. It is the examiner's position that since applicant fails to disclose a type of shield in the limitations it is therefore the position of the examiner that the mirror 107 shields the detector from ambient light and only allows the detector to receive light from the matter. Therefore, the reference of Ulrichsen et al. reads on the claimed limitations.

***Allowable Subject Matter***

8. Claims 66-102, 110-113, 117-119 are allowed over the prior art of record.
9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 66, the prior art fails to disclose or make obvious an apparatus for automatically inspecting matter having a data-obtaining means connected to the detecting means and serving to obtain the detection data therefrom, the arrangement being such that the beams of the varied medium which are received at the detecting means and emanate from the respective detection zones travel along respective paths from the matter to the mirror which paths converge continuously with respect to each other from the matter to the mirror and do not substantially coincide with any significant part of the path of the emitted detection medium from the emitting means to the matter, and in combination with the other recited limitations of claim 86. Claims 67-85 are allowed by the virtue of dependency on the allowed claim 66.

Regarding claim 86, the prior art fails to disclose or make obvious a method of automatically inspecting matter having the beams of the varied medium which are received at the detecting means and emanate from the respective detection zones traveling along respective paths from the matter to the mirror which paths converge continuously with respect to each other

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from the matter to the mirror and do not substantially coincide with an significant part of the path of the emitted detection medium from the emitting means to the matter, and in combination with the other recited limitations of claim 86. Claims 87-100 are allowed by the virtue of dependency on the allowed claim 86.

Regarding claim 101, the prior art fails to disclose or make obvious an apparatus for automatically inspecting matter having a rotary polygonal mirror arranged to receive directly from the matter detection medium varied by variations in the matter, and in combination with the other recited limitations of claim 101. Claim 102 is allowed by the virtue of dependency on the allowed claim 101.

Regarding claims 110,113, the prior art fails to disclose or make obvious a method or apparatus of automatically inspecting matter for varying compositions having the step of using a camera to detect spatial characteristics of the objects and generating data dependence upon the spatial characteristics, and in combination with the other recited limitations of claim 113. Claims 111,112 are allowed by the virtue of dependency on the allowed claim 110.

Regarding claim 117, the prior art fails to disclose or make obvious an apparatus for automatically inspecting a stream of matter having a first and second receiving means of the respective first and second inspection arrangement separate from each other and arranged to receive from the matter detection medium varied by variations in the matter, and in combination with the other recited limitations of claim 117. Claims 118, 119 are allowed by the virtue of dependency on the allowed claim 117.

***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

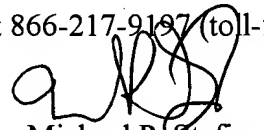
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430. The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael P. Stafira  
Primary Examiner  
Art Unit 2877

October 27, 2004